

Message Text

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PAGE 01 STATE 158372

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DRAFTED BY EB/ITP/EWT:JMGREGORY, JR.:MAR

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C O N F I D E N T I A L STATE 158372

EXCON

E.O. 11652: XGDS-1

TAGS: ESTC, COCOM, FR, CZ

SUBJECT: FRENCH ICS AND SPARES TO CZECHOSLOVAKIA - IL 1564

REF : COCOM DOC(74)1203

1. DEL SHOULD OBJECT TO REF A BECAUSE IT REPRESENTS A SIGNIFICANT DEPARTURE FROM NORMAL EXPORTS OF ICS IN PROVIDING A SIGNIFICANT DEGREE OF EXTRACTABLE TECHNOLOGY IN A RESEARCH FIELD OF STRATEGIC SIGNIFICANCE MORE ADVANCED THAN ANY HERETOFORE PRESENTED TO THE COMMITTEE.

2. THE CIRCUITS PROPOSED FOR EXPORT ARE SOS (SILICON ON SAPPHIRE) MOS CIRCUITS PRODUCED THUS FAR IN THE US BY ONLY ONE MANUFACTURER AND ONLY IN EXPERIMENTAL PRODUCTION BY A FEW OTHERS. NORMALLY, THE COMMITTEE HAS REGARDED THE RISK OF TECHNOLOGY EXTRACTION FROM COMPLETED CIRCUITS AS MINIMAL BUT IN THIS INSTANCE THE ITEMS INDICATED AS "SPARE PARTS" INCLUDE P AND N DIFFUSED WAFERS, AND 1355 EQUIPMENT IN THE FORM OF A SET OF MASKS FOR LO (FOUR TRANSISTOR QUAD)
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PAGE 02 STATE 158372

TYPES. THE BASE MATERIAL IS ACTUALLY PREPARED SOS SUBSTRATE

RATHER THAN MERELY INDUSTRIAL SAPHIRE. THEREFORE THE TRANS-ACTION IS REALLY IN THE NATURE OF A DO-IT-YOURSELF KIT FROM WHICH A GOOD DEAL OF TECHNOLOGICAL INFORMATION CAN BE DRAWN.

3. BY THEMSELVES THE MASKS FOR SOS CIRCUITS HAVE DIFFERENT TECHNICAL REQUIREMENTS THAN THOSE USED FOR CONVENTIONAL SILICON SUBSTRATES. ADDITIONALLY, THE SUBSTRATE FORMATION ILLUSTRATES AS NO DISSEMBLED CIRCUIT COULD WHAT GOOD SILICON MOUNTED ON GOOD SAPHIRE SHOULD BE LIKE BEFORE IT CAN BE USED IN THE FINISHED CIRCUITS.

4. THE SOS DEVICES THEMSELVES USE LESS POWER THAN CONVENTIONAL MOS, HAVE IMPROVED RADIATION HARDENED PROPERTIES, AND ACHIEVE HIGHER SPEEDS. THE LO2 FOR EXAMPLE USES ONE TENTH THE POWER AND ACHIEVES TWENTY TIMES THE SPEED OF THE COMPETITIVE MOS DEVICES AND IS THEREFORE REGARDED AS HAVING GREAT POTENTIAL AS IT IS REACHING MILITARY DRAWING BOARDS. KISSINGER

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